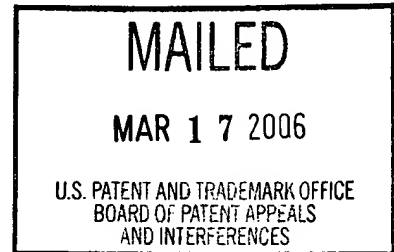


UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte George A. Saliba

Appeal No. 2006-0689
Application No. 09/577,637



HEARD: March 7, 2006

Before JERRY SMITH, BARRY, and MacDONALD, *Administrative Patent Judges*.
BARRY, *Administrative Patent Judge*.

A patent examiner rejected claims 1-31. The appellant appeals therefrom under 35 U.S.C. § 134(a). We reverse.

I. BACKGROUND

The invention at issue on appeal concerns storing large data structures. The appellant has observed an exponential growth in the amount of data being stored in digital format. For example, multimedia data files such as movie trailers may be as large as 1 to 10 Megabytes. Although hard disk drives and linear tapes can be used to store such large data files, the appellant opines that neither is well suited for this purpose. (Spec. at 2.)

Accordingly, the appellant stores data files as logical cylinders that can be written to and read from a recording media such as a magnetic tape. Each data file is stored on the recording media as a track of continuous data. The recording media can be subdivided into separate track locations, each of which can be employed for storing a single data file. Because each logical track can be accessed independently, asserts the appellant, stored files can be altered independently, without requiring other files stored on the media to be reorganized or rearranged. (*Id.* at 4.) Because the file structure is provided as a continuous track of data, he adds, the structure is always intact, and data fragmentation is avoided. Locating the continuous track of data within a comparatively small length of tape, further asserts the appellant, minimizes the time required to access a large file. (*Id.* at 4-5.)

A further understanding of the invention can be achieved by reading the following claim.

1. A method of configuring a tape storage medium for recording a data file having a finite size, comprising:

defining a logical cylinder on said storage medium, the tape storage medium comprising a single magnetic tape, said logical cylinder comprising at least one storage ring and being located entirely on a portion of the magnetic tape; and

recording, on the at least one storage ring, said data file;

wherein a length of said logical cylinder is dynamically allocated based on a size of the data file.

Claim 16. A method of storing, on a single storage medium, a data file of finite size, comprising:

determining a size of the data file;

determining, from the size of the data file, a length of a storage ring on said single storage medium for recording said file on said storage ring; and

defining, on said single storage medium, a logical cylinder to accommodate said storage ring on said logical cylinder, the logical cylinder being located entirely on a portion of the single storage medium.

Claims 1, 4-7, 16-20, and 26-31 stand rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 5,403,639 ("Belsan"). Claims 2, 3, 8-15, and 21-25 stand rejected under 35 U.S.C. 103(a) as obvious over Belsan and U.S. Patent No. 4,445,195 ("Yamamoto").

II. OPINION

"Rather than reiterate the positions of the examiner or the appellant *in toto*, we focus on the point of contention therebetween." *Ex parte Kaysen*, No. 2003-0553, 2004

WL 1697755, at *2 (Bd.Pat.App & Int. 2004). The examiner makes the following assertions.

Belsan discloses the logical cylinder number identifies uniquely and the logical address is used as a confirmation for cylinders location for data integrity considerations. The Logical Cylinder Directory (medium) count the number of Virtual Track Instances contained in the Logical Cylinder. The storage control includes a free space directory that list all of the logical cylinders in the disk drive (medium) array data storage subsystem ordered by logical device (see col. 18, lines 1-22 et seq, Fig. 12, Belsan). Further, logical tracks are organized into logical cylinders, each of which is the collection of all logical tracks within a redundancy group that can be accessed at a common logical actuator position. Disk drive array data storage subsystem appears to the host processor to be a collection of large form factor disk drives, each of which contains a predetermined number of tracks of a predetermined size called a virtual track (see col. 16, lines 8-16 and Fig. 2 et seq, Belsan). The claimed a logical cylinder located entirely on a portion of a single recording medium hence very similar to Belsan's a logical cylinder located entirely on a portion of a single recording medium.

(Examiner's Answer at 13.) The appellant argues, "this cited portion does not disclose that the logical cylinder is on a single medium." (Appeal Br.¹ at 7.)

In addressing the point of contention, the Board conducts a two-step analysis. First, we construe the independent claims at issue to determine their scope. Second,

¹We cite to the appellant's revised appeal brief (Paper No. 19) because his original appeal brief (Paper No. 17) was defective. (Paper No. 18.) The latter brief has not been considered in deciding the appeal.

we determine whether the construed claims are anticipated or would have been obvious.

A. CLAIM CONSTRUCTION

"Analysis begins with a key legal question — *what is the invention claimed?*" *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1567, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987). Here, claim 16 recites in pertinent part the following limitations: "defining, on said single storage medium, a logical cylinder to accommodate said storage ring on said logical cylinder, the logical cylinder being located entirely on a portion of the single storage medium." Independent claims 1, 8, 21, and 26 include similar limitations. Accordingly, the independent claims require that a logical cylinder be located entirely on a single storage medium.

B. ANTICIPATION AND OBVIOUSNESS DETERMINATIONS

"Having construed the claim limitations at issue, we now compare the claims to the prior art to determine if the prior art anticipates those claims." *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349, 64 USPQ2d 1202, 1206 (Fed. Cir. 2002). "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (citing

Structural Rubber Prods. Co. v. Park Rubber Co., 749 F.2d 707, 715, 223 USPQ 1264, 1270 (Fed. Cir. 1984); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548, 220 USPQ 193, 198 (Fed. Cir. 1983); *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771, 218 USPQ 781, 789 (Fed. Cir. 1983)). "[A]bsence from the reference of any claimed element negates anticipation." *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565, 1571, 230 USPQ 81, 84 (Fed. Cir. 1986).

Here, Belsan discloses a "disk array data storage subsystem compris[ing] a plurality of small form factor disk drives that are interconnected into redundancy groups, each of which contain $n+m$ disk drives for storing n segments of data and m redundancy segments in order to safeguard the integrity of the data stored therein." Col. 2, ll. 36-42. "The redundancy group is also called a logical volume or a logical device. Within each logical device there are a plurality of logical tracks, each of which is the set of all physical tracks in the redundancy group which have the same physical track address." Col. 16, ll. 3-8. "These logical tracks are also organized into logical cylinders, each of which is the collection of all logical tracks within a redundancy group which can be accessed at a common logical actuator position." *Id.* at ll. 8-12. Although the reference includes these logical cylinders, it does not disclose that any of the logical cylinders are located entirely on a single one of its disk drives.

Of course, "[a]n anticipatory reference . . . need not duplicate word for word what is in the claims. Anticipation can occur when a claimed limitation is 'inherent' . . . in the relevant reference." *Standard Havens Prods. Inc. v. Gencor Indus., Inc.*, 953 F.2d 1360, 1369, 21 USPQ2d 1321, 1328 (Fed. Cir. 1991) (citing *Tyler Refrigeration v. Kysor Indus. Corp.*, 777 F.2d 687, 689, 227 USPQ 845, 846-47 (Fed. Cir. 1985)). "To establish inherency, [however,] the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (quoting *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991)). "Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981) (citing *Hansgirk v. Kemmer*, 102 F.2d 212, 40 USPQ 665, 667 (CCPA 1939)).

Here, we are unpersuaded that any of Belsan's logical cylinders are located entirely on a single one of its disk drives and would be so recognized by persons of ordinary skill. To the contrary, the appellant's interpretation that the reference's "logical cylinder exists on multiple drives," (Appeal Br. at 7), is plausible, if not probable.

disclosed in the Belsan reference 'is the collection of all logical tracks within a redundancy group that can be accessed at a common logical actuator position,' each logical cylinder spans multiple disk drives rather than being on a single recording medium." (Reply Br. at 2.)

The absence of a logical cylinder located entirely on a single storage medium negates anticipation. Therefore, we reverse the anticipation rejection of independent claims 1, 16, and 26 and of claims 4-7, 15-20, and 27-31, which depend therefrom.

"In rejecting claims under 35 U.S.C. Section 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness." *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993) (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992)). "A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)).


Here, the examiner does not allege, let alone show, that the addition of Yamamoto cures the aforementioned deficiency of Belsan. Absent a teaching or

suggestion of a logical cylinder located entirely on a single storage medium, we are unpersuaded of a *prima facie* case of obviousness. Therefore, we reverse the obviousness rejection of claims 2 and 3; which depend from claim 1; of independent claims 8 and 21; and of claims 9-15 and 22-25, which depend from the latter independent claims.

III. CONCLUSION

In summary, the rejection of claims 1, 4-7, 16-20, and 26-31 under § 102(b) is reversed. The rejection of claims 2, 3, 8-15, and 21-25 under § 103(a) is also reversed.

Jerry Smith
JERRY SMITH
Administrative Patent Judge


LANCE LEONARD BARRY
Administrative Patent Judge


ALLEN E. MacDONALD
Administrative Patent Judge

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